

Appl. No. 10/064,601
Amdt. dated February 23, 2005
Reply to Office action of January 27, 2005

AMENDMENTS TO THE CLAIMS

1. (currently amended) A control circuit for controlling an optical disk drive, the ~~control~~
circuit comprising:

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a frequency detector for receiving an eight-to-fourteen modulation (EFM) signal
and a data phase-locked loop (DPLL) signal;

a phase detector for receiving the EFM signal and the DPLL signal;

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a low pass filter connected to the frequency detector and the phase detector for
receiving outputs from the frequency detector and the phase detector and for
outputting a first control signal;

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~~a voltage-controlled oscillator (VCO) connected to the low pass filter for receiving
the first control signal and for outputting the DPLL signal; and~~

a controller for monitoring the DPLL signal, calculating a target frequency, and for
outputting a second control signal generated according to the target frequency to
the VCO; and

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a voltage-controlled oscillator (VCO) connected to the low pass filter and the
controller for receiving the first control signal and the second control signal, and for
generating the DPLL signal based on the first control signal when the optical disk
drive is in a non-seek mode, and for generating the DPLL signal based on the
second control signal when the optical disk drive is in a seek mode.

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~~wherein the controller is capable of calculating a target frequency and outputs the~~

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~~second control signal to the VCO to cause the VCO to output the DPLL signal according to the target frequency.~~

2. (currently amended) The control circuit of claim 1 wherein ~~during a non seek mode,~~
5 ~~the VCO outputs the DPLL signal according to the first control signal; and during a~~
 ~~seek the seek mode,~~ the controller calculates ~~a target~~ the target frequency and
 outputs the second control signal to the VCO to cause the VCO to output the DPLL
 signal according to the target frequency.
- 10 3. (currently amended) The control circuit of claim 1 wherein the controller calculates a
 ~~target~~ the target frequency and outputs the second control signal to the VCO to
 cause the VCO to output the DPLL signal according to the target frequency when a
 rotation speed of a spindle of the optical disk drive changes.
- 15 4. (original) The control circuit of claim 1 wherein the controller comprises:

 a digital-to-analog converter connected to the VCO for outputting the second
 control signal; and

20 a frequency monitor for monitoring the DPLL signal.
5. (original) The control circuit of claim 1 further comprising a frequency divider
 connected to the VCO for dividing a frequency of the DPLL signal.
- 25 6. (original) The control circuit of claim 1 wherein the controller further sets charge
 pump currents of the frequency detector and the phase detector according to the
 target frequency.

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7. (original) The control circuit of claim 1 wherein the controller determines the target frequency referencing a track number and a media type.
- 5 8. (original) The control circuit of claim 1 wherein the controller further sets an RF equalizer signal and a differential phase detector (DPD) equalizer signal according to the target frequency.
- 10 9. (original) The control circuit of claim 8 wherein the controller references tabulated data to correspond the target frequency with the second control signal, the RF equalizer signal, and the DPD equalizer signal.
10. (original) The control circuit of claim 1 wherein the optical disk drive operates in a constant angular velocity mode.
- 15 11. (original) The control circuit of claim 1 being incorporated in a compact disk (CD) drive or a digital versatile disk (DVD) drive.
12. (original) A method for controlling an optical disk drive, the method comprising:
- 20 monitoring a data phase-locked loop (DPLL) signal;
generating a first control signal based on an eight-to-fourteen modulation (EFM) signal and the DPLL signal;
- 25 generating the DPLL signal based on the first control signal when the optical disk drive is in a non-seek mode;
- calculating a target frequency for the DPLL signal;
generating a second control signal based on the target frequency; and

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generating the DPLL signal based on the second control signal when the optical disk drive is in a seek mode.

5 13. (original) The method of claim 12 further comprising:

detecting when a rotation speed of a spindle of the optical disk drive changes; and

10 generating the DPLL signal based on the second control signal when the rotation speed of the spindle of the optical disk drive changes.

14. (original) The method of claim 12 further comprising frequency dividing a frequency of the DPLL signal.

15 15. (original) The method of claim 12 further comprising setting charge pump currents of a frequency detector and a phase detector according to the target frequency.

16. (original) The method of claim 12 wherein calculating the target frequency references a track number and a media type of the optical disk drive.

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17. (original) The method of claim 12 further comprising setting an RF equalizer signal and a differential phase detector (DPD) equalizer signal according to the target frequency.

25 18. (original) The method of claim 17 further comprising referencing tabulated data to correspond the target frequency with the second control signal, the RF equalizer signal, and the DPD equalizer signal.